REMARKS

This is intended as a full and complete response to the Office Action dated June 16, 2005, having a shortened statutory period for response set to expire on September 16, 2005. Please reconsider the claims pending in the application for reasons discussed below.

Claims 1-27 and 42 remain pending in the application upon entry of this response. Claims 41 and 43-55 have been cancelled by the Applicant. Claims 1-27 and 42 stand rejected by the Examiner. Reconsideration of the rejected claims is requested for reasons presented below.

Claims 1-27 and 42 stand rejected under 35 USC § 102(b) as being anticipated by Oda et al., U.S. Publication No. 2001-0045606 (herein *Oda*). The Examiner asserts that *Oda* discloses all of the claimed elements of the present application. The Applicant respectfully traverses the rejection.

Oda discloses a process to deposit a doped silicon-germanium material by a CVD process. *Oda* states that "the concentration of dopant may be 1×10^{20} cm^{-3} or less" (paragraph 103, lines 10-11) and "may be 1×10^{19} cm^{-3} or more, with the upper limit being 1×10^{20} cm^{-3}, at which diffusion of the dopant is remarkable" (paragraph 136, lines 3-5). Therefore, *Oda* teaches an upper dopant concentration limit of 1×10^{20} cm^{-3}.

Oda does not teach, show or suggest a method for depositing a silicon germanium film on a substrate comprising providing a substrate within a process chamber, heating the substrate to a temperature within a range from about 500°C to about 900°C, exposing the substrate to a first deposition gas comprising silane, germanium, hydrogen chloride, a carrier gas and at least one dopant gas to deposit a first silicon germanium material epitaxially on the substrate, wherein the first silicon germanium material contains a dopant concentration of greater than 1×10^{20} atoms/cm^3 and exposing the substrate to a second deposition gas comprising dichlorosilane and a germanium source to deposit a second silicon germanium material on the substrate, as recited in claim 1, and claims dependent thereon.

Also, *Oda* does not teach, show or suggest a selective epitaxial method for depositing a silicon germanium film on a substrate comprising proving a substrate within

a process chamber heating the substrate to a temperature within a range from about 500°C to about 900°C and exposing the substrate to a deposition gas comprising silane, a germanium source, an etchant source, a carrier gas and at least one dopant gas to selectively form a silicon germanium material containing a dopant concentration within a range from about 2×10^{20} atoms/cm^3 to about 2.5×10^{21} atoms/cm^3, as recited in claim 14, and claims dependent thereon.

Also, *Oda* does not teach, show or suggest a method for depositing a silicon germanium film on a substrate comprising placing a substrate within a process chamber heating the substrate to a temperature within a range from about 500°C to about 900°C and exposing the substrate to a deposition gas comprising a silicon-containing gas, a germanium source, hydrogen chloride and a boron-containing dopant gas to selectively deposit a silicon germanium material epitaxially on the substrate, wherein the silicon germanium material contains a boron concentration of greater than about 1×10^{20} atoms/cm^3, as recited in claim 42.

Withdrawal of the rejection is respectfully requested.

Claims 11 and 25 stand rejected under 35 USC § 103(a) as being unpatentable over *Oda* in view of Steele et al., U.S. Patent No. 5,273,930 (herein *Steele*) and Chu et al., U.S. Publication No. 2005-0045905 (herein *Chu*). The Examiner asserts that it would have been obvious to one of ordinary skill in the art to form a silicon germanium of *Oda* by replacing silane with dichlorosilane to deposit a second silicon germanium film as taught by *Steele* and *Chu*. The Applicant respectfully traverses the rejection.

Oda has been discussed and distinguished above. *Steele* discloses "a method of non-selectively depositing a semiconductor seed layer on both a semiconductor material and a dielectric material" (column 7, lines 5-7, also see column 5, lines 24-37). *Steele* teaches away from selectively depositing the seed layer while remaining silent to epitaxially depositing the seed layer. *Chu* discloses forming a variety of silicon germanium layers by co-flowing silane and germane at predetermined ratios relative to a desired germanium concentration for each layer. The Applicant did not find within *Chu* any disclosure of dichlorosilane or a process for depositing a silicon germanium material by using silane and a second silicon germanium material by using dichlorosilane.

Oda, *Steele* and *Chu* alone or in combination, do not teach, show or suggest a method for depositing a silicon germanium film on a substrate comprising providing a substrate within a process chamber, heating the substrate to a temperature within a range from about 500°C to about 900°C, exposing the substrate to a first deposition gas comprising silane, germanium, hydrogen chloride, a carrier gas and at least one dopant gas to deposit a first silicon germanium material epitaxially on the substrate, wherein the first silicon germanium material contains a dopant concentration of greater than 1×10^{20} atoms/cm^3 and exposing the substrate to a second deposition gas comprising dichlorosilane and a germanium source to deposit a second silicon germanium material on the substrate, as recited in claim 1, and claim 11 dependent thereon.

Also, *Oda*, *Steele* and *Chu* alone or in combination, do not teach, show or suggest a selective epitaxial method for depositing a silicon germanium film on a substrate comprising proving a substrate within a process chamber heating the substrate to a temperature within a range from about 500°C to about 900°C and exposing the substrate to a deposition gas comprising silane, a germanium source, an etchant source, a carrier gas and at least one dopant gas to selectively form a silicon germanium material containing a dopant concentration within a range from about 2×10^{20} atoms/cm^3 to about 2.5×10^{21} atoms/cm^3, as recited in claim 14, and claim 25 dependent thereon.

Withdrawal of the rejection is respectfully requested.

Claim 42 stands rejected under 35 USC § 103(a) as being unpatentable over *Oda* in view of *Steele* and *Chu*. The Examiner asserts that it would have been obvious to one of ordinary skill in the art to form a silicon germanium of *Oda* by selecting a carrier gas as taught by *Chu*.

Claim 42 has been amended by the Applicant. *Oda*, *Steele* and *Chu* alone or in combination, do not teach, show or suggest a method for depositing a silicon germanium film on a substrate comprising placing a substrate within a process chamber heating the substrate to a temperature within a range from about 500°C to about 900°C and exposing the substrate to a deposition gas comprising a silicon-containing gas, a germanium source, hydrogen chloride and a boron-containing dopant gas to selectively deposit a silicon germanium material epitaxially on the substrate, wherein the silicon

germanium material contains a boron concentration of greater than about 1×10^{20} atoms/cm^3, as recited in claim 42.

Withdrawal of the rejection is respectfully requested.

In conclusion, the references cited by the Examiner, alone or in combination, do not teach, show or suggest the invention as claimed.

Having addressed all issues set out in the office action, the Applicant respectfully submits that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,

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